

Department of Water and Power



the City of Los Angeles

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September 21, 1992

Ref: 92XXLCM373

Ms. Claire Trombadore
Project Manager
U.S. Environmental Protection Agency
Mail Stop H-6-4
75 Hawthorne Street
San Francisco, California 94105

AR0019

Dear Ms. Trombadore:

Proposed Plan for Glendale - North Plume
Operable Unit Feasibility Study

At the public hearing for the Glendale Operable Unit (OU) - North Plume that was conducted by the U.S. Environmental Protection Agency (USEPA) on July 23, 1992, interest was expressed regarding the use of "perozone", an advanced oxidation treatment process for removing volatile organic compounds from groundwater. The Los Angeles Department of Water and Power (LADWP) offers the following comments with regard to this type of treatment process.

The LADWP has constructed an advanced oxidation process (AOP) plant, now being tested, that features the use of ozone and hydrogen peroxide to decompose groundwater contaminants, primarily trichloroethylene (TCE) and perchloroethylene (PCE), resulting in products that are not harmful. The primary advantage of the AOP is that removal of the TCE and PCE from the groundwater is performed by this destructive process rather than transferring the compounds from the liquid phase to another phase or medium.

Although the cost of this process that was estimated in the Glendale OU - Feasibility Study appears to be favorable when compared to other treatment processes, including aeration with air emissions control equipment; the AOP has not been used in any large-scale, long-term applications that would be considered comparable to the type of use that is currently being considered.

The LADWP has recently completed its AOP Demonstration Project in November 1991 as a pilot project to provide wellhead TCE treatment for North Hollywood (NH) Wells Nos. 11 and 28 to

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evaluate the process. The AOP Plant has a capacity to treat 2,000 gpm with a maximum TCE level at 300 ppb.

The AOP plant involves the use of some complicated equipment such as an ozone generator and a hydrogen-peroxide feed system that require testing at high flow rates to acquire data to assess this treatment's effectiveness, reliability, and operational ease, stability and range.

The initial stages of operation included equipment testing, refinement of operation and maintenance procedures, and determination of data collection and reporting methods. The facility was shut down in mid-December 1991 due to pipeline construction at LADWP's NH Pumping Plant and resumed operation at the end of March 1992. The AOP has since been operating on a four-day-per-week testing schedule under a Construction and Testing Permit issued by the California Department of Health Services.

The LADWP is currently working on solving problems that have been encountered with the hydrogen peroxide injection system, the air drying system, and the electrical system during operation of the AOP Plant.

Unfortunately, one major nonoperational problem has been the lack of significant TCE levels in NH Wells Nos. 11 and 28 due to reduced groundwater levels in this area as a result of various factors including the extended drought. The LADWP is evaluating various ways to obtain water with higher contamination levels from another source or to introduce controlled amounts of TCE into the influent in order to test the removal effectiveness.

Additional challenge testing would provide a more accurate prediction of the AOP performance and cost when it is used for treating groundwater for potable use and distribution by water purveyors who are ultimately responsible for maintaining water quality within drinking water standards and protecting public health.

Such testing could indicate the need for possible design modifications to the AOP plant to ensure a satisfactory operation and performance.

Finally, testing results will be required for the California Department of Health Services to review and assess the process and system prior to their approval for the final Operating Permit.

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LADWP technical staff concurs that it is premature at this time to endorse an AOP as a preferred process over aeration with air emissions control until rigorous testing and evaluation have been completed at the AOP Demonstration Project. However, it appears appropriate that AOP remain under consideration for application to future projects if testing and evaluation indicate encouraging results.

If you have any questions, please contact Mr. Ernest F. Wong at (213) 481-6125 or Ms. Linda C. Mihalic at (213) 481-6128.

Sincerely,

Duane D. Buchholz/awz

DUANE D. BUCHHOLZ
Engineer of Design

c: Mr. Kevin Mayer, USEPA
Mr. Ernest F. Wong
Ms. Linda C. Mihalic